LaserMount™

200 SERIES

USER'S MANUAL

BUTTERFLY MOUNT
TEC BUTTERFLY MOUNT

arroyo instruments

Introduction

Thank you for choosing the **Butterfly LaserMount** from Arroyo Instruments. The **Butterfly LaserMount** is designed for high performance and long term use, with innovative features not found in other butterfly mounts.

One such feature is field-replaceable butterfly connectors. A common problem in production applications is the wear and tear on the Azimuth butterfly connectors. Unlike other products, the **Butterfly LaserMount** features field-replaceable connectors. Simply unscrew the two retaining screws, pull out the old connector and install a new one. No soldering or disassembly of the mount is required.

For applications requiring case temperature control, the **204 TECButterfly LaserMount** integrates a 16W Peltier cooler for precise control of the package temperature. With an operating range of -5°C to 85°C, the **TECButterfly LaserMount** should cover most of your case temperature control needs.

Both **Butterfly LaserMounts** are heavily finned to provide the highest heat dissipation capability, allowing you to operate at more extreme conditions or higher powers. Both mounts also have an array of screw down mounting options available with the removable base.

The **Butterfly LaserMount** also offers all the features you would expect from a modern butterfly laser diode fixture, including:

- Designed to be quickly integrated with Arroyo's **LaserSource** and **TECSource** instruments.
- Industry-standard D-sub connectors and pin-outs allow for quick integration into existing laser applications.
- Screw terminals for all 14 pins of the device, allowing for easy, solder-less configuration of the fixture.
- The **204 TEC Butterfly LaserMount** features three standard connectors, eliminating the need for custom cabling to the two TEC interfaces.

Installation and Use

Wiring the mount to your device: Start by configuring the wiring of the mount to match your butterfly laser. To do this, remove the four screws from the bottom of the fixture and lift off the base plate. This will give you access to the screw terminals inside the fixture.

Internal Wiring Example

Using the wiring guide below, connect the wires to the appropriate pins of the butterfly. The wires are color coded for easy identification.

Signal	Color
Laser Anode	Red
Laser Cathode	Black
Photodiode (PD) Anode	Green
Photodiode (PD) Cathode	White
Chassis Ground (GND)	Brown
TE (+)	Orange
TE (-)	Yellow
Thermistor	Blue
Thermistor	Violet

Fixture Wiring Guide

NOTE

Earth Grounding Considerations

The DB-9 and DB-15 connectors are electrically connected to the housing and 8mm banana jack. Depending on the wiring of your cables and instruments, this may or may not provide earth grounding of the fixture. Make sure the cable shell is earth grounded on both ends of the cable, and that the instrument makes connection from its connector to earth ground. If in doubt, you can also use a grounding strap from the 8mm banana jack directly to earth ground.

Your mount was shipped with four rubber feet, which can be used if the fixture will not be bolted to an optical bench or other mounting system. The feet prevent the fixture from skidding on a smooth surface. If you plan to use the feet, install them now in the four corners of the label side of the bottom plate.

Once you have wired the mount for your device and optionally installed the feet, place the base plate back on the mount and screw in the four screws.

Connect to Laser Diode Driver and TEC Controller: Next, connect the **Butterfly LaserMount** to your laser diode driver and temperature controller. For the **204 TECButterfly LaserMount**, you will need a second temperature controller for the case temperature control.

NOTE

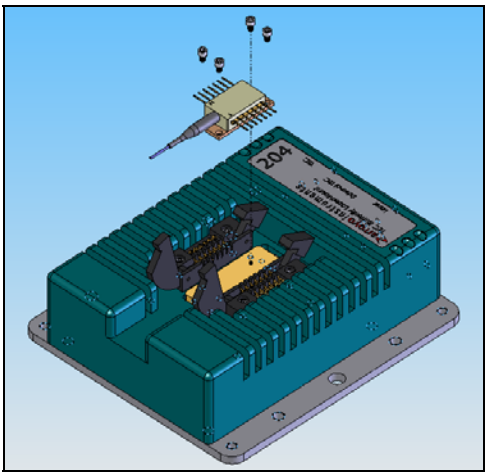
Arroyo Instruments offers Laser and TEC cables designed to connect directly between our **LaserSource** and **TECSource** products. If you use your own cables, ensure the connections are properly made between the instrument and the mount, and that proper grounding techniques are used. The pin-out of the connectors can be found later in this document.

WARNING

Be sure you are properly ESD protected before handling your laser. For additional information, read the section titled "Laser Diode Protection" later in this manual.

Mounting your device: Remove the four small butterfly mounting screws from the mounting plate, open the Azimuth connectors on either side of the mounting plate, and carefully place your butterfly laser onto the mounting plate. Make sure the fiber is exiting through the gap provided in the front of the mount.

Screw in the mounting screws, ***but do not over tighten, as you can strip the threads in the mounting plate***.



Loading of the Device

Device Loaded

Your mount is now ready for use. Additional technical information can be found below.

Connector Pin-Outs

202 Butterfly LaserMount Connectors

204 TECButterfly LaserMount Connectors

DB-9 Pin	Description
1 – 3	No connection
4 & 5	Laser cathode
6	Photodiode cathode
7	Photodiode anode
8 & 9	Laser anode

Laser DB-9 Connector Pin-Out

On the **204 TECButterfly LaserMount**, both TEC DB-15 connectors are pinned identically.

DB-15 Pin	Description
1 & 2	TE (+)
3 & 4	TE (-)
7	Thermistor
8	Thermistor
5, 6, 9 – 15	No connection

TEC DB-15 Connector Pin-Out

Technical Specifications

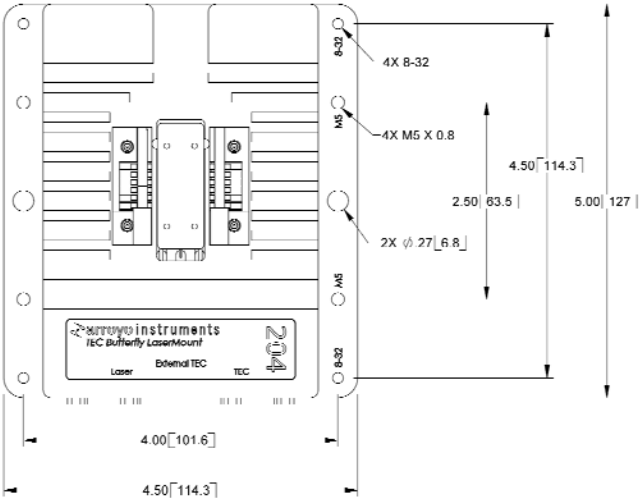
202 Butterfly LaserMount	
LASER PACKAGE SUPPORTED	
Package	14-pin Butterfly
INPUT CONNECTOR	
Laser Diode	DB-9, male
Laser TEC	DB-15, male

204 TEC Butterfly LaserMount	
TEMPERATURE CONTROL	
Temperature Range (°C)[1]	-5 to +85
Sensor Type	10kΩ Thermistor
TE Module	Imax = 3.9A Vmax = 7.6V Qmax = 16.6W
LASER PACKAGE SUPPORTED	
Package	14-pin Butterfly
INPUT CONNECTOR	
Laser Diode	DB-9, male
Laser TEC	DB-15, male
Mount TEC	DB-15, male

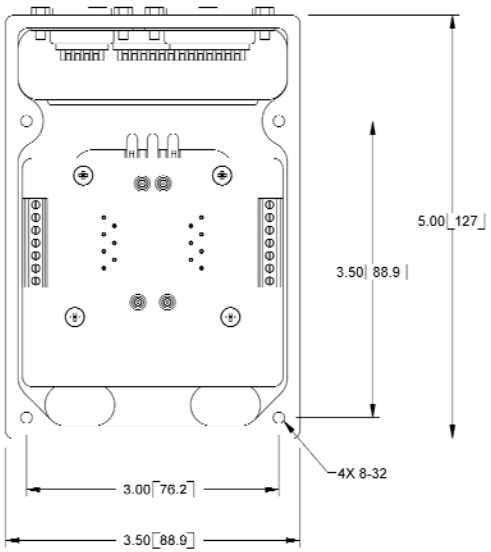
GENERAL	
Size w/ base (H x W x D) [in(mm)]	1.55(38) x 4.50(114) x 5.00(127)
Size w/o base (H x W x D) [in(mm)]	1.35(34) x 3.50(97) x 5.00(127)
Mounting holes	¼-20 through-hole, 4" on center (x2) 8-32 threaded holes (x4) M5 threaded holes (x4)
Device mounting screws (202)	2-56 x 3/16" stainless steel socket head
Device mounting screws (204)	2-56 x1/8" stainless steel socket head

[1] Temperature control range is dependent on the power dissipated into the heat sink. Mounting fixture to an optical table will increase the heat dissipation capability.

Mechanical Specifications



Top View



Bottom View with Base Plate Removed

Laser Diode Protection

Electrostatic discharge and current spikes can be a significant cause of damage to laser diodes, but when proper precautions are taken, these risks can be greatly reduced or eliminated. Arroyo Instruments' controllers offer state-of-art laser diode protection, but no instrument can fully shield the laser from damage. Please take these considerations into account when operating your laser:

1. Always set the current limit at or below the maximum current your laser can handle. This prevents the device from accidentally driving the current too high, either via the set point or from the modulation port. This also provides additional current limiting protection from ESD.
2. Always work in an ESD safe operating environment, including the use of wrist straps, ESD grounded work surfaces and floors, and ESD-safe tools.
3. Where the AC power to the laser driver to temperature controller may be noisy, use isolation transformers or uninterruptible power supplies that provide isolation.
4. Make sure all cables are securely connected and fastening screws are screwed in tight.
5. Do not route power cords or other cables in parallel with the laser or temperature controller cables, as coupling may occur between the cables and inject noise into the laser diode.
6. While it is not possible to create a ground loop through the LaserSource because of it's isolation of all inputs, it is possible when using other equipment. Ensure that any other equipment is properly isolated to avoid any ground loop problems.

For additional ESD protection, adding 3.5µH (Mouser P/N 542-FB73-287) ferrite beads as close to the laser diode as possible is recommended. One ferrite bead should be used on each laser diode and photodiode diode anode and cathode, with the wire going through the bead at least twice (two turns).

Warranty

Arroyo Instruments warrants this product to be free from defects in material and workmanship under normal use and service for a period of one (1) year from date of shipment. It does not apply when the product has been misused, altered or damaged by accident or abnormal conditions of operation. If found to be defective during the warranty period, the product will either be repaired or replaced at Arroyo Instruments's option.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. ARROYO INSTRUMENTS SHALL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE PURCHASE OR USE OF ITS PRODUCTS.

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